

## REMARKS

### CLAIM REJECTIONS

Claims 1 – 21 have been rejected under 35 U.S.C. 112, second paragraph, as being unpatentable for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1 – 39 have been rejected under 35 U.S.C. 103 as being unpatentable over Perkins (U.S. Patent No. 6,288,840) in view of Garvin (U.S. Patent No. 4,289,381). Applicant respectfully traverses these rejections for at least the following reasons.

#### A. Rejections under 35 U.S.C. 112

Claims 1 – 21 have been rejected under 35 U.S.C. 112, second paragraph, as being unpatentable for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant respectfully traverses these rejections for at least the following reasons.

The present Office Action has rejected Claim 1 stating, in part, “the meaning of the limitations *for maximizing a transmission of a first polarization state while minimizing a reflection of the first polarization state, and for minimizing a transmission for an orthogonal second polarization state while maximizing a reflection of the second polarization state* cannot be ascertained.” [Emphasis in original] Office Action @ 2. Further, the present Office Action notes “that the limitations *maximizing a*

transmission of a first polarization state while minimizing a reflection of the first polarization state are mutually redundant.” [Emphasis in original] Office Action @ 3.

35 U.S. C. 112, second paragraph requires that [t]he specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 1 sets forth, in relevant part,

A radiation polarizer for maximizing a transmission of a first polarization state while minimizing a reflection of the first polarization state, and for minimizing a transmission for an orthogonal second polarization state while maximizing a reflection of the second polarization state, said polarizer comprising:

1. Determining the meaning

The present Office Action has rejected Claim 1 stating, in part, “the meaning of the limitations *for maximizing a transmission of a first polarization state while minimizing a reflection of the first polarization state, and for minimizing a transmission for an orthogonal second polarization state while maximizing a reflection of the second polarization state* cannot be ascertained.” [Emphasis in original] Office Action @ 2.

Applicant respectfully submits that the meaning of the phrase “for maximizing a transmission of a first polarization state while minimizing a reflection of the first polarization state, and for minimizing a transmission for an orthogonal second polarization state while maximizing a reflection of the second polarization state” would be understood by a person having ordinary skill in the pertinent arts. Just as is done in

the present Office Action, at page 3, the meaning of this terminology may be “interpreted as constituting relative (as opposed to absolute) modifiers.” Applicant respectfully submits that the use of these terms is in fact based in the relative sense.

“If the claims, read in light of the specification, reasonably apprise those skilled in the art both of the utilization and scope of the invention, and if the language is as precise as the subject matter permits, the courts can demand no more.” Georgia-Pacific Corp. v. United States Plywood Corp., 258 F.2d 124, 136 (2<sup>nd</sup> Cir. 1958).

Further, as set forth in the MPEP, an Examiner “should allow claims which define the patentable novelty with a *reasonable degree* of particularity and distinctness. Some latitude in the manner of expression and the aptness of terms should be permitted even though the claim language is not as precise as the Examiner might desire.” [Emphasis in original] *MPEP 706.03(d)*. Applicant respectfully submits that the terminology as used represents a reasonable degree of particularity as required by the MPEP.

Particularly, in light of the specification and figures associated therewith which distinctly show a polarizer with less than 100% transmission. If necessary, Applicant may be willing to amend the claim to modify each of maximizing and minimizing with “relatively” in order to clarify what would be understood to those possessing an ordinary skill in the pertinent arts. Further, Applicant submits that the language at issue is in the preamble and therefore is not a limitation of the claim. Schumer v. Lab. Computer Systems, Inc., 308 F.3d 1304, 1310 (Fed. Cir. 2002) [body of the claim sets out the complete invention]. Applicant respectfully submits that the present rejection is traversed as one having an ordinary skill in the pertinent arts would not interpret maximizing a transmission as being 100% and would be understood to be a relative term.

2. Mutually redundant

The present Office Action notes “that the limitations maximizing a transmission of a first polarization state while minimizing a reflection of the first polarization state are mutually redundant.” [Emphasis in original] Office Action @ 3. Applicant respectfully submits that this is technically incorrect. If such an assertion were true all radiation incident on a polarizer would necessary be reflected or transmitted. As set forth, energy incident on a polarizer may be reflected, transmitted, or absorbed. The terminology in fact is necessary to distinguish the present invention from others that may employ absorption.

B. Rejections under 35 U.S.C. 103

Claims 1 – 39 have been rejected under 35 U.S.C. 103 as being unpatentable over Perkins (U.S. Patent No. 6,288,840) in view of Garvin (U.S. Patent No. 4,289,381). Applicant respectfully traverses these rejections for at least the following reasons.

35 U.S.C. §103(a) recites:

[a] patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). *MPEP* 706.02(j).

## **1. Independent Claims**

Claim 1, recites

A radiation polarizer for maximizing a transmission of a first polarization state while minimizing a reflection of the first polarization state, and for minimizing a transmission for an orthogonal second polarization state while maximizing a reflection of the second polarization state, said polarizer comprising:

a substrate;

at least one anti-reflection coating layer communicatively coupled to said substrate;

at least two nanostructures communicatively coupled to said at least one anti-reflection coating layer;

at least two groove layers, wherein each one of said at least two groove layers is interstitial to a respective one of said at least two nanostructures; and,

at least one dielectric substantially between said substrate and said at least two groove layers, said at least one dielectric having a refractive index greater than one,

wherein a communicative coupling between each one of said groove layers and the respective one of said nanostructures polarizes the radiation, wherein the radiation has an electric field orthogonal to said at least two groove layers, and wherein the radiation has a wavelength in a range of about 250 nm to less than about a microwave wavelength.

The present Office Action cites Garvin. In stark contrast to the present invention, Garvin does not teach the maximizing of the reflection of a first polarization while maximizing the transmission of a polarization orthogonal to the first polarization. This deficiency in the teaching of Garvin is not remedied by the citation to Perkins. Perkins similarly does not teach the maximizing of the transmitted polarization state while maximizing the reflection of the orthogonal polarization state. Applicant respectfully submits that for at least this reason the present application is not unpatentable.

Further, Claim 1 recites "at least one dielectric substantially between said substrate and said at least two groove layers, said at least one dielectric having a refractive index greater than one". Applicant respectfully submits that the placement of a dielectric between the substrate and the groove layers is not taught or discussed in Perkins or Garvin, alone or in any combination. Applicant points to the present Office Action in this regard, wherein the Office Action states that Perkins does not teach at least one dielectric .... *Office Action @ 4*. In Perkins, for example, the grid structure is surrounded by air and immediately contacts the substrate.

The present Office Action cites to Garvin for the teaching of the at least one dielectric substantially between the substrate and the groove layers. The present Office Action attempts to set forth the teachings of Garvin with respect to layer 36 of Figure 7

to reject two elements recited in the present Claim 1. The Office Action uses layer 36 as a teaching of anti-reflection layers recited as “at least one anti-reflection coating layer communicatively coupled to said substrate” and for “at least one dielectric substantially between said substrate and said at least two groove layers.” Applicant respectfully submits that as claimed the anti-reflection layer and the dielectric layer are two distinct elements of the present invention. *See Specification generally and specifically Figure 1.*

In Garvin, there is only an anti-reflection coating between the grooves and the substrate, and while, the anti-reflection coating is made of a dielectric, it is not a distinct element as is the dielectric layer as claimed. Applicant, if required by the Examiner, may be willing to clarify this element by amending in that the dielectric layer is distinct from the anti-reflection coating, but Applicant respectfully submits that such a distinction is inherent as they are in fact two recited claim elements.

Because the references fail to teach the use of at least one dielectric between said substrate and said groove layers, Applicant respectfully submits that Claim 1 is patentably distinct.

Applicant respectfully submits that Claims 22, 33 and 39 are similarly distinguishable over the presently cited art, for at least the reasons set forth with respect to Claim 1.

## **2. Dependent Claims**

Applicant respectfully submits that Claims 2 – 21, 23 – 32, and 34 – 38 are not anticipated under § 103(a) as being unpatentable over Perkins in view of Garvin, at

least by virtue of these claims' ultimate dependency upon a patentable base claim, namely Claims 1, 22, and 33, respectively.

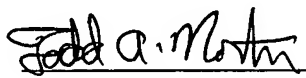
## **CONCLUSION**

Wherefore, Applicant believes he has addressed all outstanding grounds raised by Examiner and respectfully submits that the present case is in condition for allowance, early notification of which is earnestly solicited.

Should there be any questions or outstanding matters, Examiner is cordially invited and requested to contact Applicant's undersigned attorney at his number listed below.

Respectfully Submitted,

**REED SMITH LLP**

  
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